

FIGURE 1 PRIOR ART

200
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Document 1: Mark Knopfler is a member of a famous band. He is a good singer and he plays the guitar.

Document 2: The Dire Straits are a famous band which originally had 4 members. Mark Knopfler is their lead singer and he also plays guitar.

Document 3: Robert De Niro is a brilliant actor who plays in many films. For one of his films he received an Oscar.

FIGURE 2

500
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Document 1: Mark Knopfler member famous band. singer play guitar.

Document 2: Dire Straits famous band member. Mark Knopfler lead singer play guitar.

Document 3: Robert De Niro brilliant actor play film. film receive Oscar.

FIGURE 5

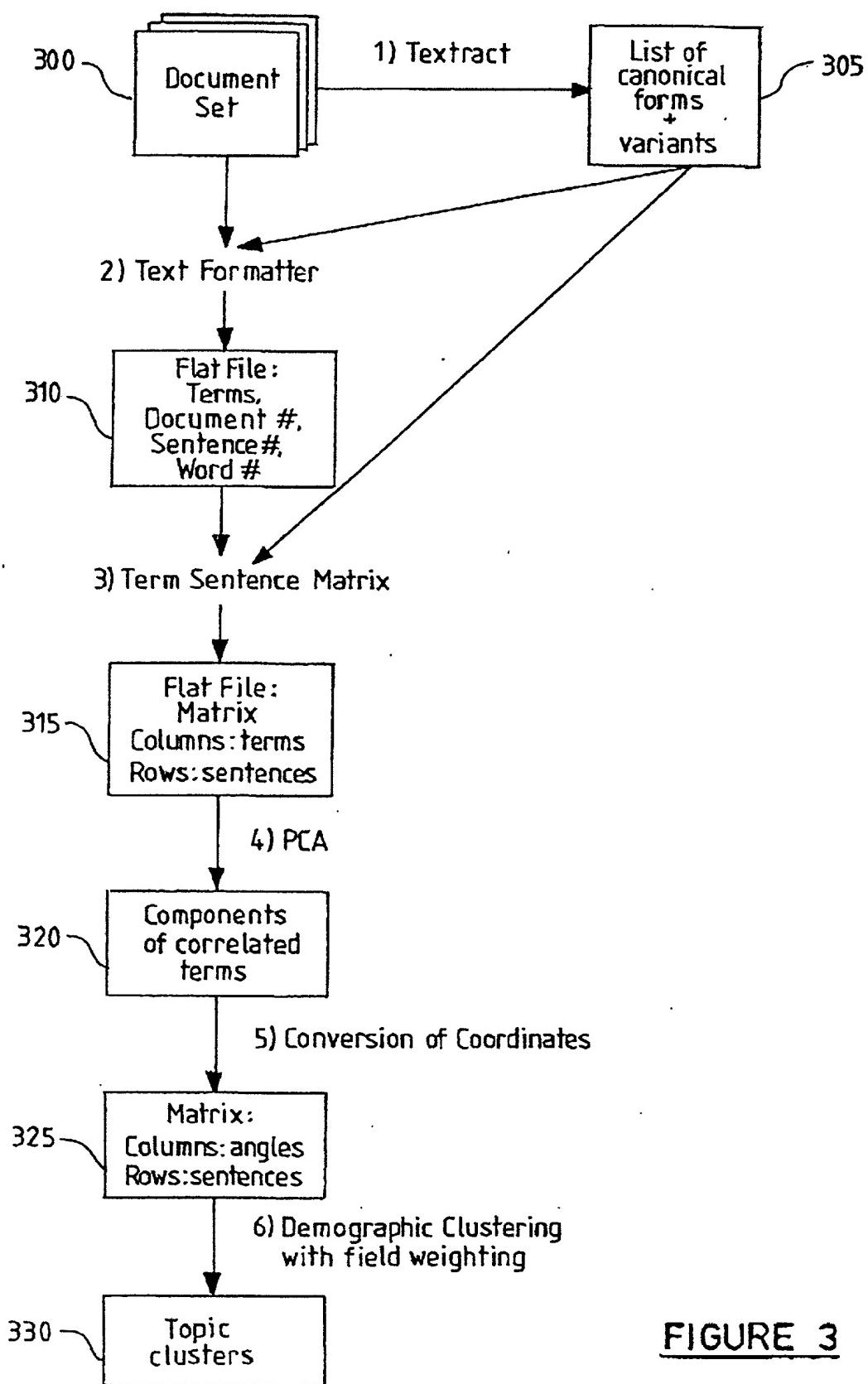


FIGURE 3

STD: extr	Reason: N	Docs:	1	Occcs:	1	22 VOCAB: Y
UNORD		1	1	0 50.00	1	actor
UNORD		1	1	0 50.00	1	brilliant
PLACE		4	1	0 50.00	1	Dire Straits
UTERM		2	1	1 50.00	1	famous band
UNORD		2	1	1 50.00	2	film
UNORD		2	1	1 50.00	1	guitar
UNORD		1	1	0 50.00	1	lead
PERSON?		3	1	1 50.00	2	Mark Knopfler
		2	1	1 50.00	2	knopfler
UNORD		1	1	0 50.00	2	member
UNAME		1	1	0 50.00	1	members
UNORD		1	1	0 50.00	1	Oscar
UNORD		1	1	1 50.00	2	play
UNORD		1	1	0 50.00	2	plays
PERSON?		1	1	0 50.00	2	receive
UNORD		2	1	0 50.00	2	received
		2	1	0 50.00	2	Robert De Niro
		2	1	1 50.00	1	Be Niro
		2	1	1 50.00	1	singer

FIGURE 4

600 ↗

<i>Variant forms (key)</i>	<i>Canonical forms (value)</i>
actor	actor
brilliant	brilliant
...	...
film	film
flim	film
...	...
Mark Knopfler	Mark Knopfler
Knopfler	Mark Knopfler
member	member
members	member
...	...

FIGURE 6

700

FIGURE 7

800

term,documentNo,sentenceNo,wordNo
Mark Knopfler,1,1,1
member,1,1,2
famous band,1,1,3
singer,1,2,1
play,1,2,2
guitar,1,3,3
Dire Straits,2,3,1
famous band,2,3,2
member,2,3,3
Mark Knopfler,2,4,1
lead,2,4,2
singer,2,4,3
play,2,4,4
guitar,2,4,5
Robert De Niro,3,5,1
brilliant,3,5,2
actor,3,5,3
play,3,5,4
film,3,5,5
film,3,6,1
receive,3,6,2
Oscar,3,6,3

FIGURE 8

<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>..</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>
actor	brilliant	Dire Straits	famous band	film	guitar	...	member	Oscar	play	receive	Robert De Niro	singer

FIGURE 9

<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>..</i>	<i>15</i>	<i>16</i>	<i>17</i>	<i>18</i>	<i>19</i>	<i>20</i>	<i>21</i>
Mark Knopfler	member	famous band	singer	play	guitar	...	brilliant	actor	play	film	film	receive	Oscar

FIGURE 10

<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
famous band	film	guitar	Mark Knopfler	member	play	singer

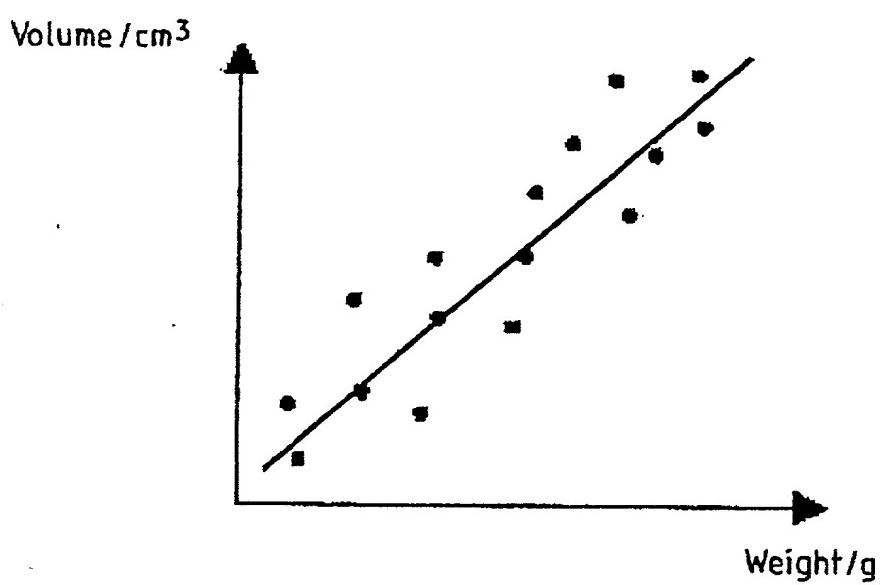
FIGURE 11

<i>0</i>	<i>1</i>	<i>2</i>
Mark Knopfler	member	famous band

FIGURE 12

famous band,film,guitar,Mark Knopfler,member,play,singer,docNo,sentenceNo 1,0,0,1,1,0,0,1,1 0,0,1,0,0,1,1,1,2 1,0,0,0,1,0,0,2,3 0,0,1,1,0,1,1,2,4 0,1,0,0,0,1,0,3,5 0,1,0,0,0,0,0,3,6

FIGURE 13



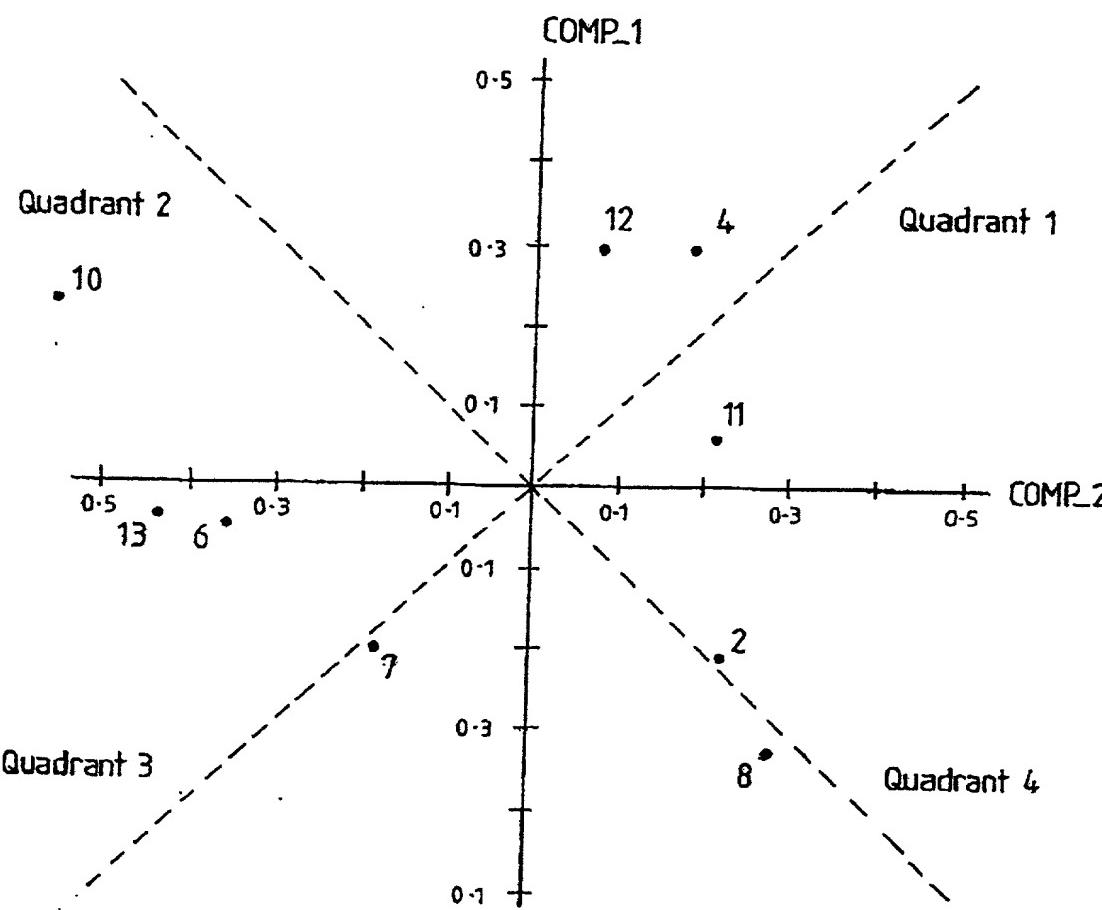


FIGURE 15

a) $|\vec{a}| = \sqrt{a_1^2 + a_2^2 + \dots + a_n^2}$

b) $|\vec{\text{sentence}}| = \sqrt{\text{COMP}_1^2 + \text{COMP}_2^2 + \dots + \text{COMP}_n^2}$

c) $\varphi = \arccos \left(\frac{\vec{a} \cdot \vec{b}}{|\vec{a}| \cdot |\vec{b}|} \right)$

d) $\cos \alpha = \frac{\vec{a} \cdot \vec{u}_1}{|\vec{a}| \cdot |\vec{u}_1|} = \frac{(a_1 a_2 \dots a_n) \cdot (10 \dots 0)}{|\vec{a}| \cdot 1} = \frac{a_1}{|\vec{a}|}$

e) $\cos \alpha = \frac{\text{COMP}_1}{|\vec{\text{sentence}}|}, \quad \cos \beta = \frac{\text{COMP}_2}{|\vec{\text{sentence}}|} \quad \text{etc}$

FIGURE 16

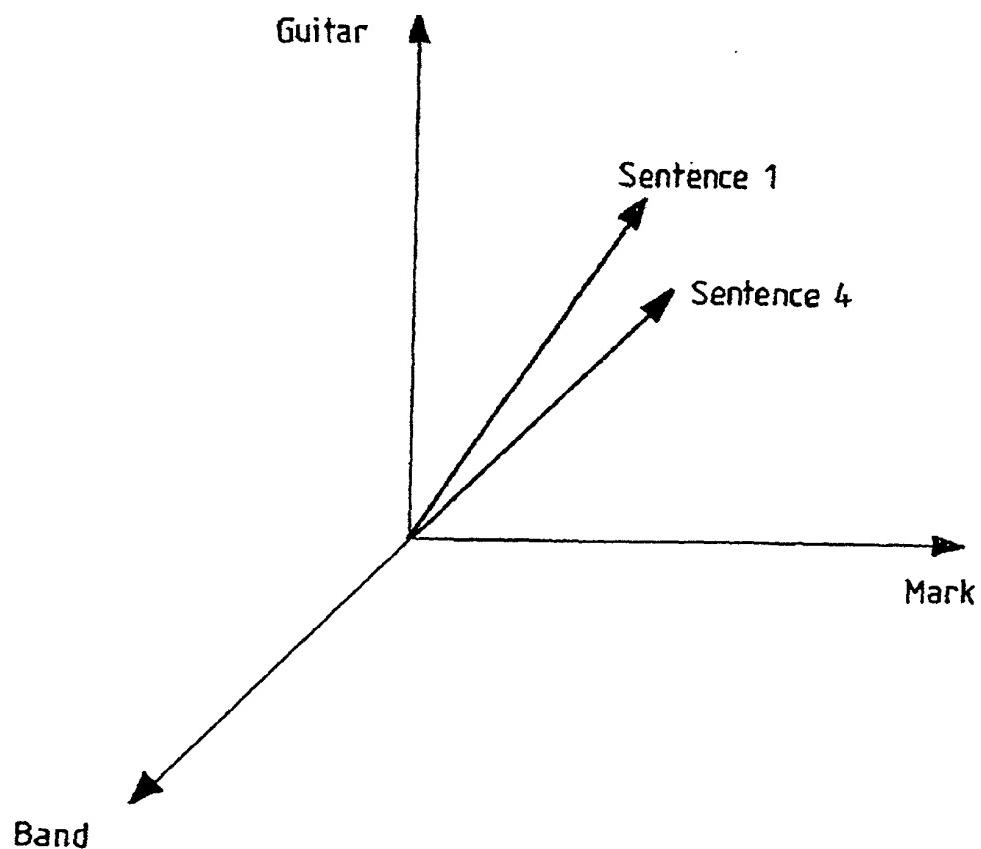


FIGURE 17

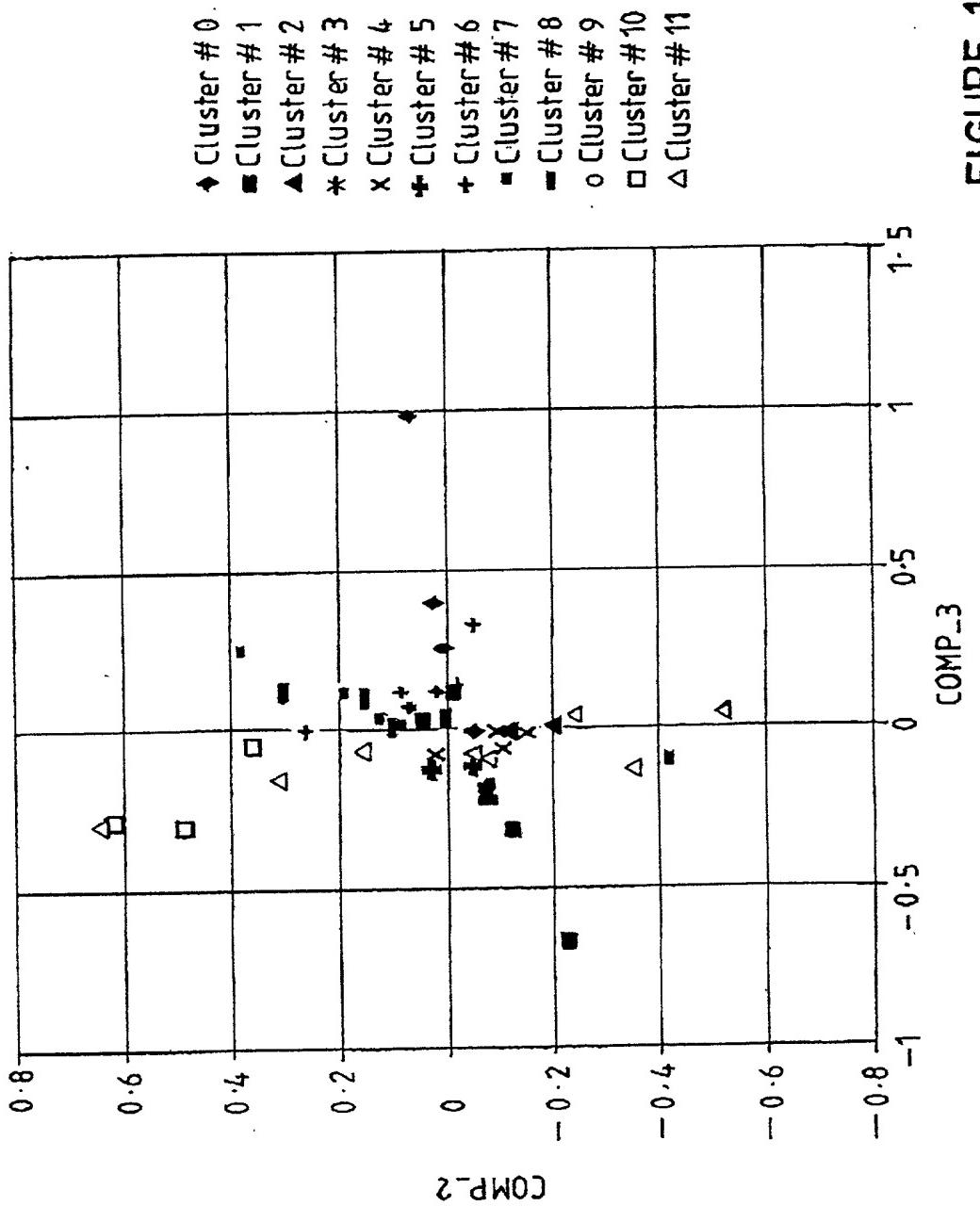


FIGURE 18